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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 10/606,436 | 06/25/2003 | Steven M. Burns | 03-325 - EH-10940 | 6928 |
| 34704 7590 01/25/2007 BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510 | | | EXAMINER IP, SIKYIN | |
| | | | ART UNIT 1742 | PAPER NUMBER |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 01/25/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/606,436 | Applicant(s) BURNS ET AL. | |
| | Examiner Sikyin Ip | Art Unit 1742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/3/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) 24-27 and 30-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-23, in the reply filed on January 26, 2006 is acknowledged.

Typographical error was made in last office action that non-elected claims 24-27 were rejected by references of record.

Instant added new claims 30-33 are related to Group II which has been withdrawn from consideration. Thus, claims 30-33 are treated as non-elected claims and withdrawn from consideration.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 15-23 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 6042898 to Burns et al.

Burns discloses steps of coating, diffusion heat treatment, peening, carbonizing, grit blasting, ionized gas cleaning, and coating. The features relied upon described above can be found in the reference(s) at: col. 3, line 31 to col. 4, line 37 and col. 6, example 2. Burns does not disclose cleaning the workpiece during diffusion heat treatment step and gas flow rate. But, cleaning workpiece at any step is contemplated within ambit of ordinary skill artisan when the workpiece is contaminated. With respect to the gas flow rate that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the gas flow rate in order to balance cost of gas and cleanness of the gas, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 1-14, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 6042898 to Burns et al as applied to claims 15-23 above, and further in view of JP 62139810 (PTO-1449) or JP 2003027209 (PTO-1449).

The Burns reference discloses the features substantially as claimed as set forth in the rejection above except for step of cleaning a furnace. However, JP 62139810 (abstract) or JP 2003027209 (abstract) teaches cleaning a furnace with inert gas in an vacuum furnace/chamber. Treating gas is transported by a pipe (40) to center of the furnace (see JP 2003027209 drawings 1-3 and abstract). JP 62139810 in abstract teaches to heat inside of the heat treatment furnace at temperature higher than heat treatment temperature in order to remove moisture and oil. This teaching reads on

limitation in claim 29. Although specific temperature range has not been specified, it teaches temperature difference sufficient high to remove contaminants. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to clean a heat treatment furnace as taught by JP 62139810 or JP 2003027209 in order to improve/provide a clean furnace for heat treatment. In re Venner, 120 USPQ 193 (CCPA 1958), In re LaVerne, et al., 108 USPQ 335, and In re Aller, et al., 105 USPQ 233.

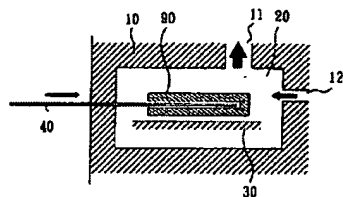
Response to Arguments

Applicant's arguments filed November 3, 2006 have been fully considered but they are not persuasive.

Applicants have found that improved coatings can be obtained begins with cleaning a furnace to be used in the diffusion heat treatment using a heat treat cycle with a gas being injected at the center of the work piece location area. It is this aspect of the claimed invention

Applicants argue that " which is neither taught nor suggested in Burns et al. "

Applicants' attention is directed to JP 2003027209 below that gas transport pipe transport gas to the center of the work piece.



Applicants argue that Burns fails to teach inject gas at workpiece center location. But, Burns teaches to inject gas to workpiece surface that includes workpiece center

location. Furthermore, there is no factual evidence that injecting gas only at workpiece center location possess unexpected result.

Applicants' argument in page 10, first paragraph of instant remarks is noted. But, Burns discloses prior art temperature at about 1500 °F (col. 3, lines 33-40). Burns heats at about 1600 °F (col. 3, lines 55-59). The heating temperature is material dependant. Varying the heating temperature according to the treating material is contemplated within ambit of ordinary skill artisan.

Applicants' argument in paragraph bridging pages 10-11 is noted. But, drawings 1-3 of said reference disclose gas is transported to the center of workpiece. Furthermore, there is no factual evidence that injecting gas only at workpiece center location possess unexpected result.

Applicants argue that none of cited references teaches the claimed flow rate. But, applicants have not shown the claimed flow rate is critical or possessed unexpected result. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manipulate the flow rate in order to remove contaminants, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The above rejection relies on the reference(s) for all the teachings expressed in the text(s) of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the text(s) of the reference(s). To emphasize certain aspect(s) of the prior art, only specific portion(s) of the text(s) have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combination of the cited references may be relied on in future rejection(s) in view of amendment(s).

All recited limitations in the instant claims have been met by the rejections as set forth above.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121 and 37 C.F.R. Part §41.37 (c)(1)(v).

Examiner Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
January 21, 2007